aura Innovation Centre

ACCELERATE. INNOVATE. COLLABORATE.

PLUGGING A GAP FOR THE UNIVERSITY'S PLUMBING PROBLEM

The University of Hull's Estates team had a problem with plumbing parts going missing. This was costing the University time and money to replace whole plumbing units, which also wasn't sustainable. With its capabilities and advanced equipment, could the Aura Innovation Centre's InventX team find a solution?

CASE STUDY: 3D Printed Filters

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THE CHALLENGE

Money down the plughole.

The University of Hull has over 16,000 students, many of whom live in university accommodation, so that's a **lot** of bathrooms to maintain.

The Estates department responsible for looking after the rooms had a problem – a small but vital part of the bathroom's plumbing kept going missing. The small drain filter is detachable from the system so is easily lost, and isn't available to buy separately, meaning every time one goes missing, the whole plumbing unit has to be replaced. This costs the university time and money, and also isn't very sustainable, as the rest of the unit can't be reused or easily recycled.

Knowing that the Aura Innovation Centre could find novel solutions to problems, the Estates department gave us a ring. Could we help?

THE SOLUTION

Stopping the drain on resources.

With the capabilities and advanced equipment of the Aura Innovation Centre's InventX innovation space, the solution was surprisingly simple. The InventX team used their Computer Aided Design (CAD) skills to design a drain filter that was exactly the right dimensions to fit the plumbing system. These were then 3D printed at InventX. The precise tolerances that the 3D printer could work to meant that the drain filters fitted exactly to the plumbing system, giving the Estates team an accurate replacement for their missing parts. And it only cost a fraction of the cost of buying whole new filter systems. Now, when the drain filter goes missing, the team have a stock of replacements which take seconds to fit.

The Aura Innovation Centre team also ran a sustainability report and lifecycle analysis on the drain filters, to ensure they really were better for the environment. These showed that the carbon footprint of the drain filters made at the AIC was much lower than the original filters.

InventX Manager Brian Houston said that working with the Estates department was a departure from the normal technologically complex work happening in the Aura Innovation Centre, but it was rewarding to see a simple project having an immediate impact in helping the university become more sustainable. "Our day-to-day work usually includes anything from augmented and virtual reality, to research around nanomaterials, to complex carbon mapping, but we can also help with more straightforward challenges too. This project shows that problems don't always need a complex solution, and that no job is too large or too small for us to look at."

THE RESULT

Sometimes the simplest solution can be the best.

Not all solutions need to have huge amounts of work involved – sometimes the answer can be a simple case of thinking outside the box and applying the equipment you have in a different way to produce the desired outcome.

Through the clever use of existing equipment, the Estates department can now save money, avoid their workforce wasting time replacing plumbing units and, most importantly, avoid throwing away materials which still work. It's a sustainable and smart way to fix a day-to-day problem.

LEAD ACADEMIC/ RESEARCHER

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